

EPISCOTHAMNUS AND BISHOPALEA, TWO NEW GENERA OF VERNONIEAE
(ASTERACEAE) FROM BRASIL, AND THE RESURRECTION OF
SIPOLISIA.

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Recent material from Brasil collected by R. M. King and L. E. Bishop includes specimens of two additional undescribed genera of the Vernoniaeae. The new genera, *Episcothamnus* and *Bishopalea*, are both named in honor of the second collector, Luther Earl Bishop. The study also has resulted in the redelimitation of *Proteopsis*, the resurrection of *Sipolisia*, and new synonymy in *Alcantara* and *Heterocoma*. The genera are considered in the above order.

EPISCOTHAMNUS H. Robinson, genus nov. Asteracearum (Vernoniaeae, Lychnophorinae).

Plantae fruticosae candelabrifformes 1½ m altae. Caules et rami 5-10 mm lati dense albo-tomentosi. Folia dense spiraliter inserta sessilia anguste oblonga vel linearia plerumque 25-160 mm longa et 4-10 mm lata distaliter minores base non vel leniter constricta margine anguste valde revoluta apice anguste acuta saepe pungentiter breviter acuminata supra leniter vel non rugulosa glabra subtus appresse albo-lanata, nervis secundariis pinnatis brevibus ca. 45° ascendentibus. Inflorescentiae spiciformes dense breviter foliosae in diametro ca. 4 cm. Capitula in axillis foliorum campanulata 20-25 mm alta et 12-15 mm lata; bractae involucri exteriores ca. 30 subimbricatae ca. 4-seriatae anguste lanceolatae 6-14 mm longae et ad 1.5-2.0 mm latae dense lanatae erecto-subappressae apice breviter aristatae glabrae; bractae interiores ca. 30 ca. 2-seriatae vix deciduae lineares 15-16 mm longae et ca. 2 mm latae inferne glabrae apice anguste acutae leniter vel valde reflexae dense lanatae; receptacula glabra epaleacea concava. Flores ca. 23 in capitulo uniformes; corollae lavandulae 13-14 mm longae infundibulares, tubis angustis ca. 4 mm longis glabris, faucibus 1.5-2.0 mm longis glabris, lobis linearibus anguste acutis 7-8 mm longis et ad 0.7-0.8 mm latis superne sensim minute glandulo-puberulis et sparse setiferis, setis biformibus elongatis incrassatis et aliquantum contractis appressis et setis brevioribus in apices obtusis in parietibus tenuibus; filamenta in parte superiore ca. 0.3 mm longa, cellulis plerumque breviter oblongis in parietibus leniter incrassatis; thecae ca. 4.5 mm longae base non appendiculatae,

cellulis endothelialibus mediis laxioribus irregulariter ornatis ad 30 μm longis; appendices antherarum ca. 2 mm longae lanceolatae anguste acutae induratae; basi stylorum non noduliferi; scapi stylorum in parte superiore setuliferi ca. 5 mm longi, rami stylorum ca. 2.5 mm longi attenuati. Achaenia ca. 5 mm longa et 1.5 mm lata prismatica ca. 10-costata glabra basi truncata; carpodia late obturaculiformia ca. 0.4 mm longa et 1 mm lata, cellulis breviter oblongis ca. 8-10-seriatis ca. 12-15 μm longis in parietibus regulariter mediocriter incrassatis; pappus biseriatus; seriebus exterioribus squamiformibus ca. 12 variis, squamis interdum 1 mm longis ovatis et multo denticulatis aliquantum deciduis interdum 2-4 mm longis lanceolatis in apicem paucis denticulatis base in parte breviter connatis persistentibus, seriebus interiores perfacile deciduis, setis anguste taeniatis plerumque 10-11 mm longis leniter spiraliter contortis margine minute scabridulis. Grana pollinis sphaerica vel leniter oblonga ca. 60 μm alta et in diametro ca. 50 μm .

Type species: *Lychnophora candelabrum* Sch.Bip.

The genus contains only one species.

EPISCOTHAMNUS CANDELABRUM (Sch.Bip.) H.Robinson, comb. nov.

Lychnophora candelabrum Sch.Bip., Pollichia 20-21: 345.

1863. The species name is treated as a noun in apposition and is not declined. The name was redundant in *Lychnophora*. The new collection is here designated as neotype. BRASIL: MINAS GERAIS: 62 km along road SW of Diamantina toward Curvelo. Elev. 3600 ft. occasional. 1½ meter tall, flowers lavender. Jan. 20, 1981. R.M. King & L.E. Bishop 8573 (Neoholotype, UB; isotype, US).

The neotype is a perfect match with the type photograph of the destroyed Sello type which was deposited in the Berlin Herbarium. The original specimen was a sterile unicate (Schultz, 1863), and was placed in the genus *Lychnophora* on the basis of the large branching habit and the densely spirally inserted leaves. The species is distinctive in the narrowly elliptical, finely pointed, abaxially white leaves, those of other *Lychnophora* species being blunt to short-acute. The new specimen shows fertile features which are sufficient to exclude the species from *Lychnophora*.

The new genus is evidently related to *Lychnophora* where the species was placed by Schultz (1863). The most distinctive feature is the form of the inflorescence with an elongate axis and large heads containing 20-25 flowers. The heads of the short spiciform inflorescence, because of the elongate axis, are scarcely contiguous, and the appearance is completely different from the short, condensed, compound head seen in *Lychnophora*. The pollen of the new genus is also somewhat distinctive in its larger size and slight tendency toward an oblong shape. The pollen in *Lychnophora* is about 40 μm in diameter and spherical to slightly oblate. *Episcothamnus candelabrum* can also be distinguished from any known species of *Lychnophora* by the narrowly

pointed tips of the leaves. *Episcothammus* has unusually large and indurate anther appendages for a member of the Vernoniaceae. In this respect the genus approaches the Mutisieae. Appendages of the genus *Lychnophora* are not as large or as indurate, but they are nearly as large in relation to the size of the anther thecae.

The new genus also might be closely related to *Lychnophoropsis* as the latter is described, but the latter has only about 10-15 flowers with a central supposedly sterile villous achene in each head.

A further feature of interest is evident in the cylindrical inflorescence of *Episcothammus*. In most Asteraceae, the inflorescence is notably cymose, a fact emphasized in such genera as *Liatris* of the Eupatoriaceae with a spiciform inflorescence first maturing at the apex. The cymose nature of the Vernoniaceae is particularly marked, and has been noted even in *V. eitenii* with a rather simple inflorescence (Robinson, 1980). In *Episcothammus*, the lower heads of the spiciform inflorescence mature first, in complete violation of the normal cymose condition in the family. The exception seems to be common in the subtribe Lychnophorinae where the peripheral heads in the inflorescences of *Lychnophora* and *Chresta* often mature first. This order of maturation is best developed in *Pithecoseris* with its simple *Dipsacus*-like inflorescence which continues to grow above as it fruits below. *Eremanthus* is notable for the simultaneous maturation of all the heads in each clustered inflorescence. Even the latter condition is a departure from the normal order of maturation in the family, and the character tends to reinforce the already recognized distinction of the subtribe Lychnophorinae.

BISHOPALEA ERECTA H. Robinson, genus et sp. nov. Asteracearum (Vernoniaceae, Vernoniinae).

Plantae erectae 1.5-5.0 m altae in parte vegetativo non ramosae. Caules in diametro 3-5 cm dense albo-lanati. Folia laxa vel interdum dense spiraliter inserta sessilia oblongo-elliptica plerumque 6-24 cm longa et 2.5-9.0 cm lata base auriculata et amplexicaulia margine minute crenulata vel subintegra apice breviter acuta supra flavo-viridia dense velutina, pilis in areolis minutis polygonalibus orietatis, subtus dense albo-lanato-tomentosa, nervis secundariis pinnatis utrinque 10-17 patentibus et leniter arcuate ascendentibus. Inflorescentiae in ramis brevibus deciduis late subdense corymboso-cymosae pauci-capitatae, ramis ultimis 5-10 mm longis dense lanatis, bracteis subinvolucralibus paucis foliosis 0.7-2.5 cm longis. Capitula late campanulata 13-15 mm alta et ca. 15 mm lata; bractee involucri 30-35 ca. 4-seriatae ovato-lanceolatae vel lineares 4-10 mm longae et 1-2 mm latae apice acutae vel pungentes extus et margine dense tomentosae; receptacula paleacea, paleis linearibus 10-11 mm longis persistentibus inferne anguste

subulatis superne subtiliter anguste fusiformibus in parte sub-apice tomentosus. Flores ca. 20 in capitulo uniformes; corollae lavandulae 9-10 mm longae cylindricae extus praeter apicem glabrae, tubis ca. 0.7 mm longis, faucibus ca. 1 mm longis, lobis linearibus 7-8 mm longis et 0.6 mm latis distaliter tomentosopilosis; filamenta in parte superiore ca. 0.45 mm longa, cellulis oblongis in parietibus leniter incrassatis; thecae antherarum 3.5 mm longae base breviter appendiculatae, cellulis endothecialibus uniformibus irregulariter polygonalibus in diametro 12-20 μ m in parietibus paulum incrassatis; appendices antherarum ca. 0.8 mm longae ovato-lanceolatae apice anguste acutae vel vix acuminateae vix indurateae; basi stylorum non noduliferi; scapi stylorum in parte superiore setuliferi ca. 1.5 mm longi; rami stylorum ca. 3.5 mm longi attenuati. Achaenia ca. 5 mm longa et 1.0-1.5 mm lata prismatica ca. 10-costata glabra base truncata; carpodia indistincta 1 mm lata margine incurvata, cellulis marginalibus et supra-marginalibus subquadratis in diametro ca. 12 μ m superne sensim majoribus; pappus uniformis setiformis, setis perfacile deciduis numerosis ca. 8 mm longis scabridulis. Grana pollinis sphaerica in diametro ca. 40 μ m (*Lychnophora*-type).

TYPE: BRASIL: Bahia: Main valley north of Mucugê from 3-8 km north of town. Elev. 2600-3000 ft. In bare rocky areas. Locally common plants with single erect woody stem 3-5 cm in diameter 1.5-5 meters tall, the short fertile branches deciduous soon after fruiting, flowers lavender. January 31, 1981. R. M. King & L. E. Bishop 8729 (Holotype, UB; isotype US).

Bishopalea is distinguished within the tribe by the combination of the paleaceous receptacles and the cymose branching inflorescences. The cylindrical corolla with its short basal tube and throat seems unique in the tribe. The pubescence on the upper surface of the leaves is also unique in its details, having the velvet oriented so that the hairs diverge along the veins. The resulting appearance shows the polygonal areoles as though they were bullate, in spite of the fact that the upper leaf surface is actually flat. The form of the pubescence, inflorescence and corollas all contrast strongly with those of *Heterocoma*, the other Brazilian genus of the Vernoniaeae having fully developed paleae on the receptacle.

The search for relatives of *Bishopalea* has ultimately led to examination of the genus *Proteopsis* for which five species have been described in Brasil. The type species, *P. argentea* Mart. & Zucc. ex Sch.Bip., has appressed argenteous pubescence, clustered heads at the top of a stalk with decrescent leaves, involucre bracts with long stiff acuminate awn-tips, and an epaleaceous receptacle. The species is not considered a close relative of *Bishopalea*, but other species that have been placed in the genus are very different.

Of the five species in *Proteopsis*, three were added by Philipson (1938), two described as new and one transferred. The transferred species was originally described as *Sipolisia*

lanuginosa Glaziou ex Oliv., is a species with heads clustered as in typical *Proteopsis*, but with stem leaves and pubescence most like *Bishopalea*. Philipson stated that *Sipolisia* differed in no essential characters from *Proteopsis*, but he overlooked the presence of long palea-like projections from the receptacle of the former. On the basis of the receptacle, the lanate pubescence of the stem, the lanceolate rather than acuminate involucral bracts, and the densely hairy tips of the corolla lobes, *Sipolisia* Glaziou ex Oliv. is here restored to the status of a monotypic genus. Relationship of *Sipolisia* is closer to *Bishopalea* than *Proteopsis*, but the former remains distinct by the fully formed paleae, the cylindrical corollas with short basal tubes, the branching lateral inflorescences, and the lanate short-aristate involucral bracts.

Philipson (1938) described a new species, *Proteopsis ekmaniana*, which he stated Ekman had determined as a new species of *Sipolisia*. Certainly, the Philipson species is close to *Sipolisia* with lanate pubescence, hairy tips on the corolla lobes, and almost identical long palea-like projections from the receptacle. The species differs, however, in the leaves with broadened imbricated sheathing bases and long narrow petioles, by the long-pedunculate axillary inflorescences, and by the extremely large paired foliose bracts subtending the heads. The Philipson species was based on *Glaziou 21668* (Kew) while the same species has been described more recently as *Alcantara petroana* Glaz. ex Barroso based on *Glaziou 21667* (Barroso, 1969). The separate generic status given by Barroso is here regarded as appropriate, but the Philipson species name has priority, necessitating the following new combination.

ALCANTARA EKMANIANA (Philipson) H. Robinson, comb. nov.

Proteopsis ekmaniana Philipson, Kew, Bull. Misc. Inform. 1938 (7): 300. 1938.

One other species, *Proteopsis sellowii* Sch. Bip., proves not to belong to *Proteopsis*. Two specimens, *Ule 2607* and *Irwin, Harley & Onishi 28979*, both from Minas Gerais, Brasil, have been seen and compare perfectly with a type photograph of *P. sellowii*. However, the two specimens prove to have true paleae in the heads, and they match the characters (Baker, 1873) and illustration (Toledo, 1941) of *Heterocoma albida* DC. The Schultz-Bipontinus species is here regarded as a synonym of the earlier de Candolle species.

There remains only one other species that has been placed in *Proteopsis*, *P. insculpta* Philipson, based on *Glaziou 14974* (Kew) cited from the environs of Rio de Janeiro and D'Ouro Preto. The species is said to closely resemble *P. argentea* in its leaves and tomentum, but to differ in its more woody and branched stems, and its involucral bracts which lack spreading spines. The type should be re-examined in view of present concepts.

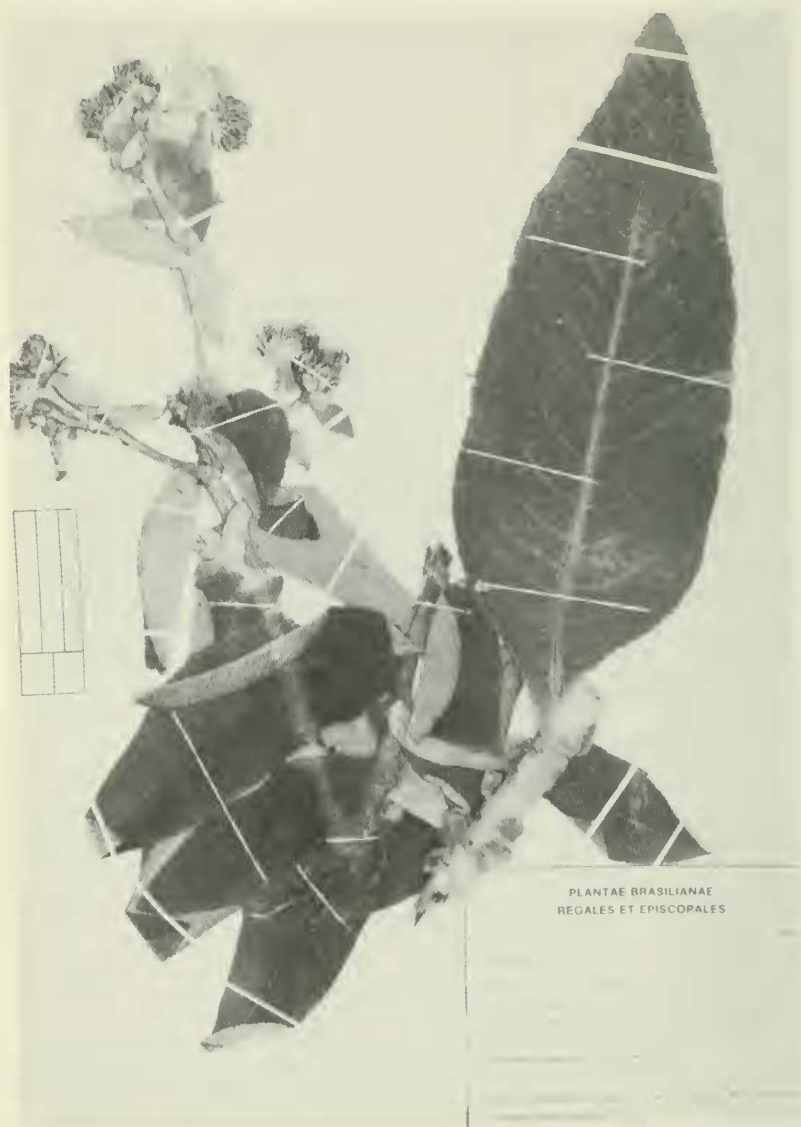
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PLANTAE BRASILIANAE
REGALES ET EPISCOPALES

Episcothammus candelabrum (Sch.Bip.) H.Robinson, Neotype, Herbário Universidade de Brasília. Photos by Victor E. Krantz, Staff Photographer, National Museum of Natural History.



Bishopalea erecta H. Robinson, Holotype, Herbário Universidade de Brasília.



Enlargements of heads. Top: *Episcothammus candelabrum*.
Bottom: *Bishopalea erecta*.